FIG. 1

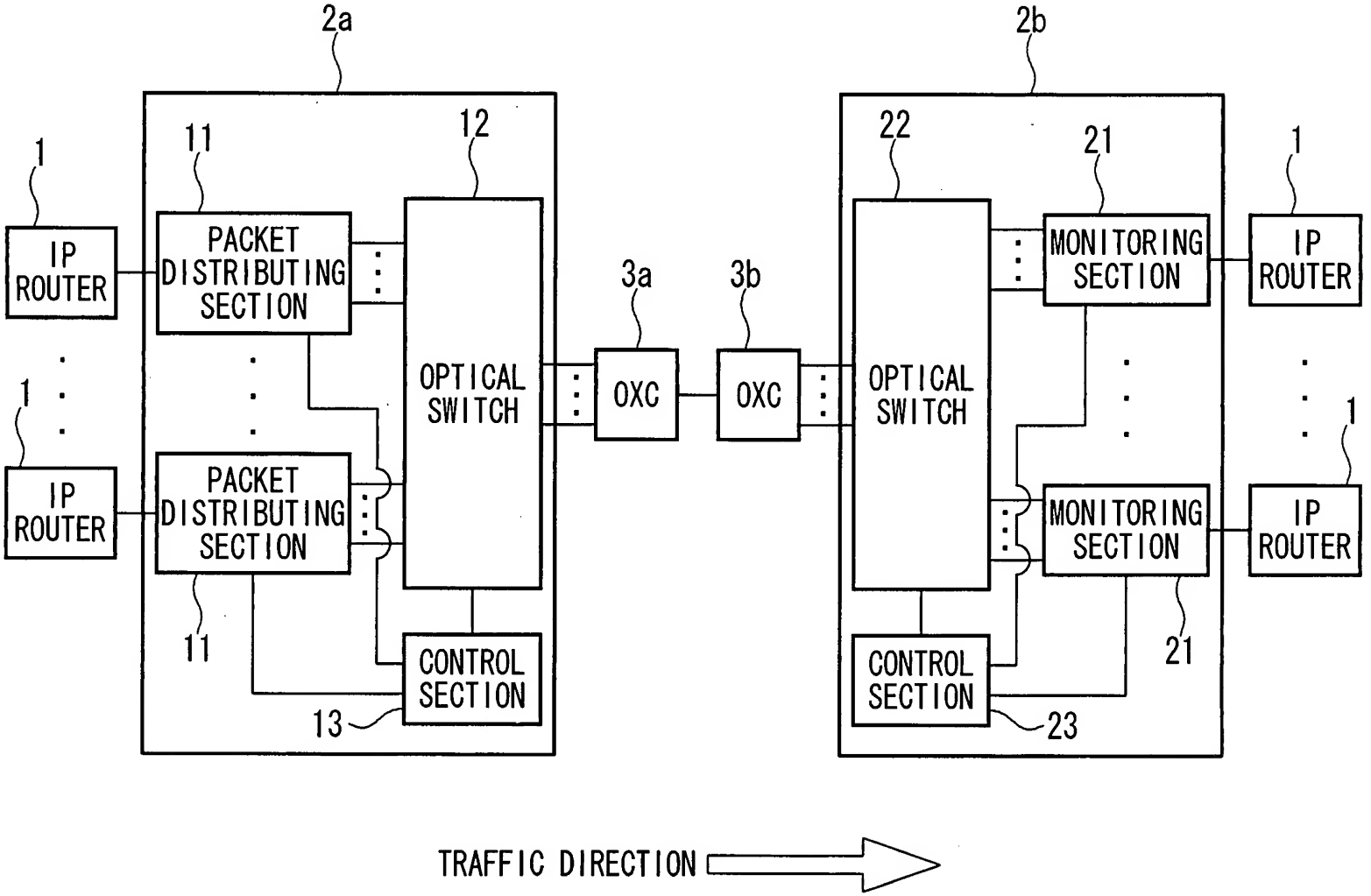

2a
2b
1
11
12
22
21
IP ROUTER
PACKET DISTRIBUTING SECTION
OPTICAL SWITCH
3a
3b
OXC
OXC
OPTICAL SWITCH
MONITORING SECTION
IP ROUTER
CONTROL SECTION
13
23
TRAFFIC DIRECTION

FIG.2

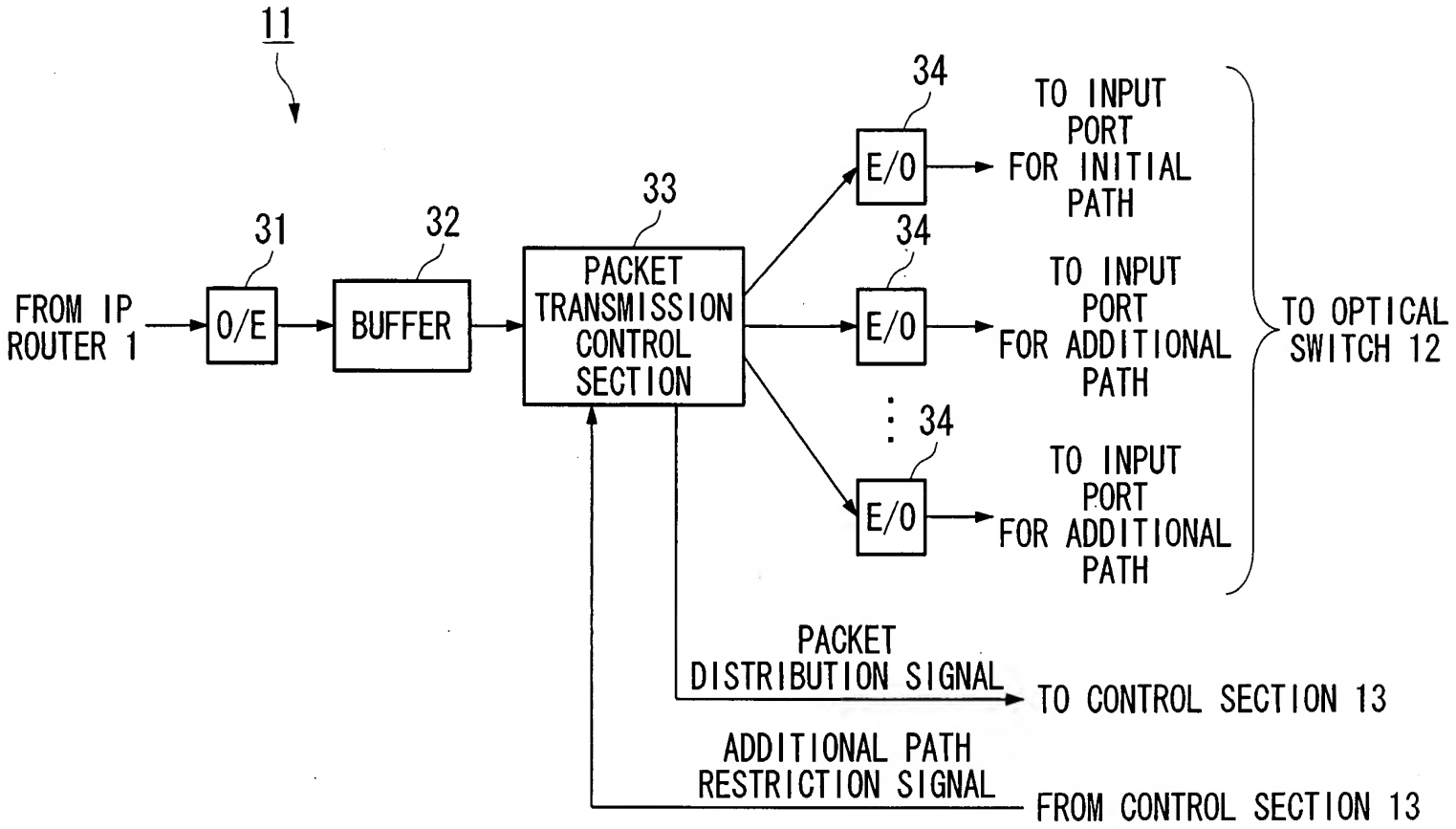

11
31
32
33
34
34
34
FROM IP ROUTER 1
O/E
BUFFER
PACKET TRANSMISSION CONTROL SECTION
E/O
E/O
E/O
TO INPUT PORT FOR INITIAL PATH
TO INPUT PORT FOR ADDITIONAL PATH
TO INPUT PORT FOR ADDITIONAL PATH
TO OPTICAL SWITCH 12
PACKET DISTRIBUTION SIGNAL
TO CONTROL SECTION 13
ADDITIONAL PATH RESTRICTION SIGNAL
FROM CONTROL SECTION 13

FIG. 3

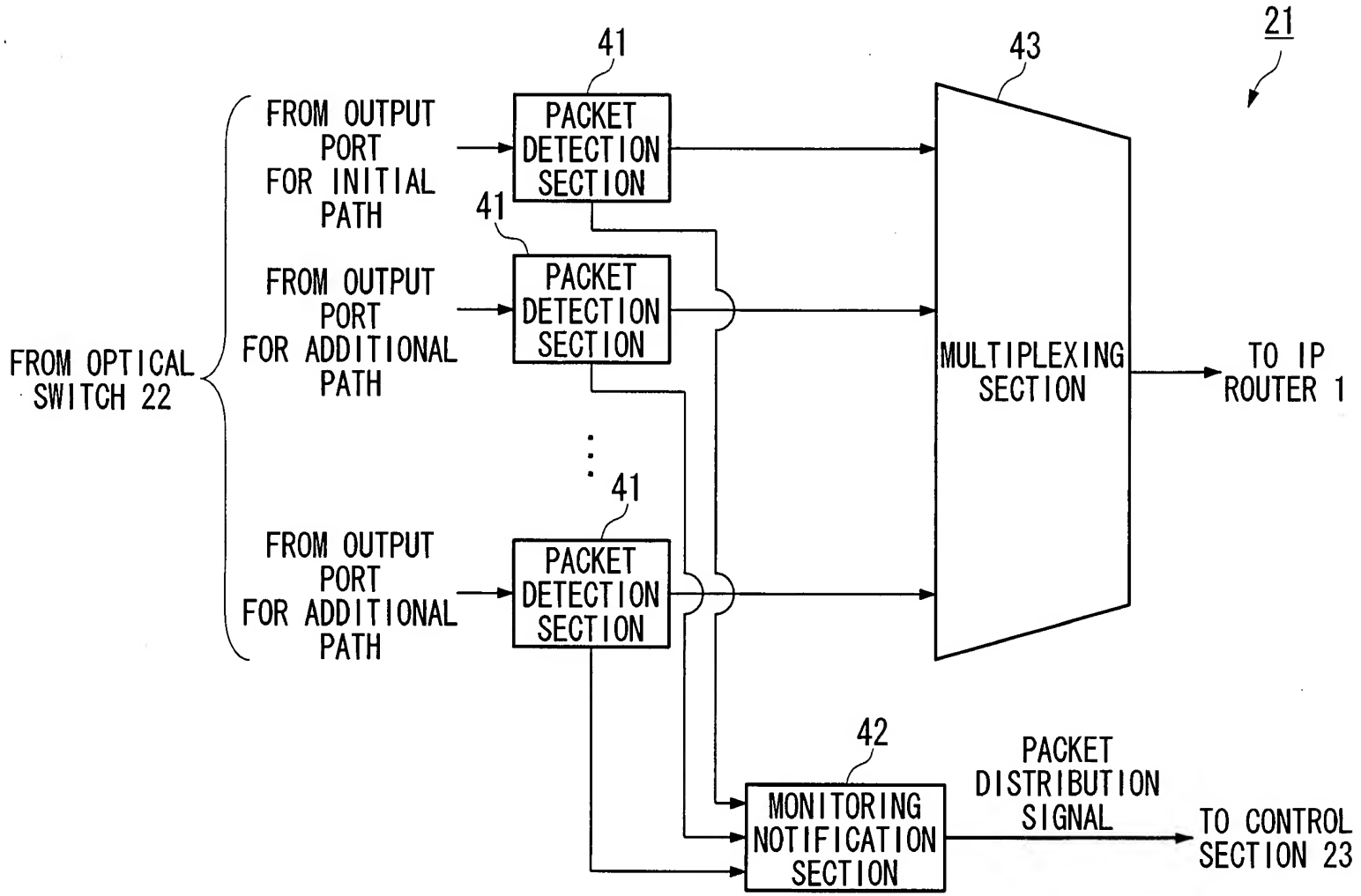

21
41
43
FROM OUTPUT PORT FOR INITIAL PATH
PACKET DETECTION SECTION
41
FROM OUTPUT PORT FOR ADDITIONAL PATH
PACKET DETECTION SECTION
FROM OPTICAL SWITCH 22
MULTIPLEXING SECTION
TO IP ROUTER 1
41
FROM OUTPUT PORT FOR ADDITIONAL PATH
PACKET DETECTION SECTION
42
MONITORING NOTIFICATION SECTION
PACKET DISTRIBUTION SIGNAL
TO CONTROL SECTION 23

FIG. 4

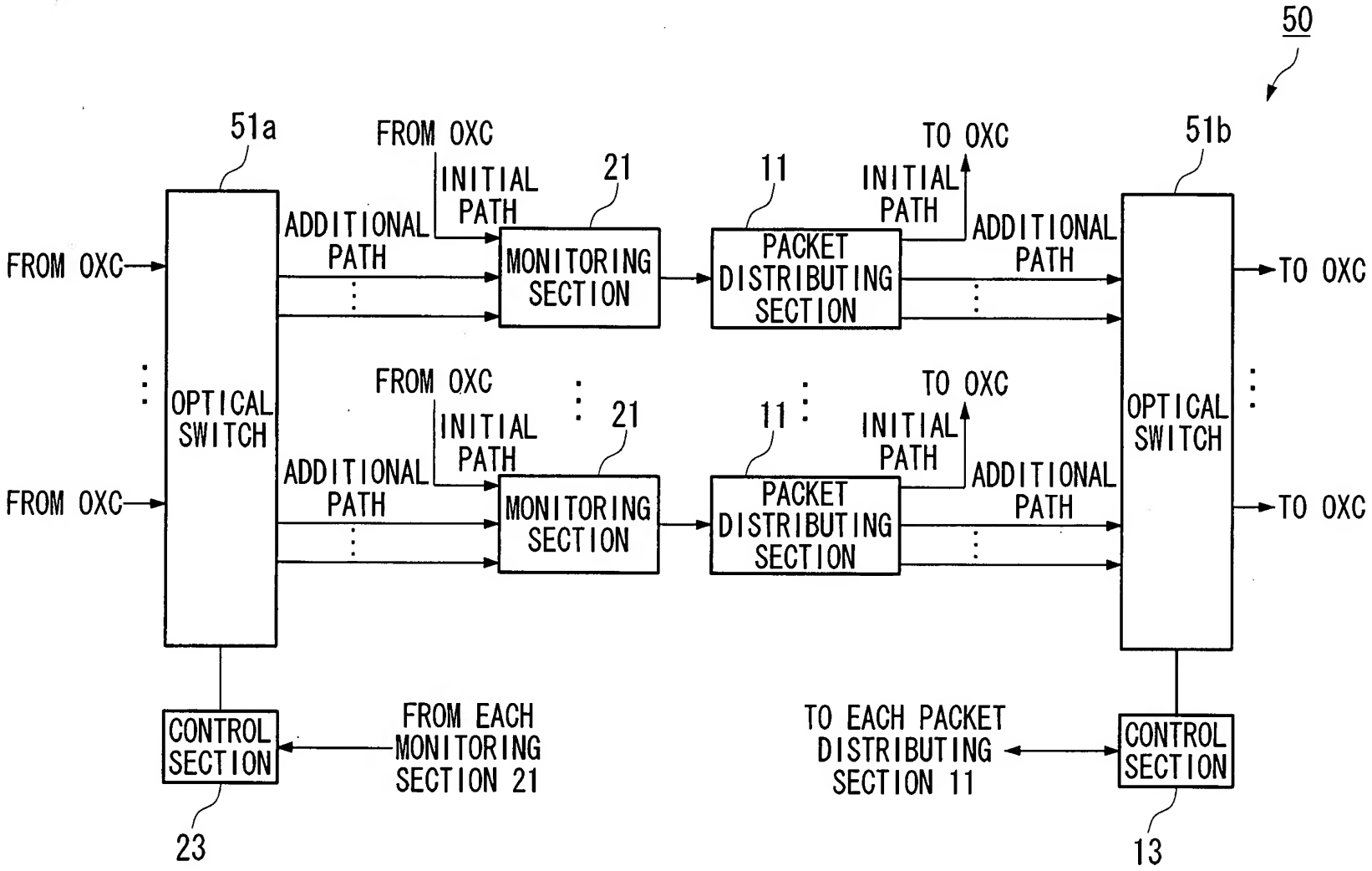
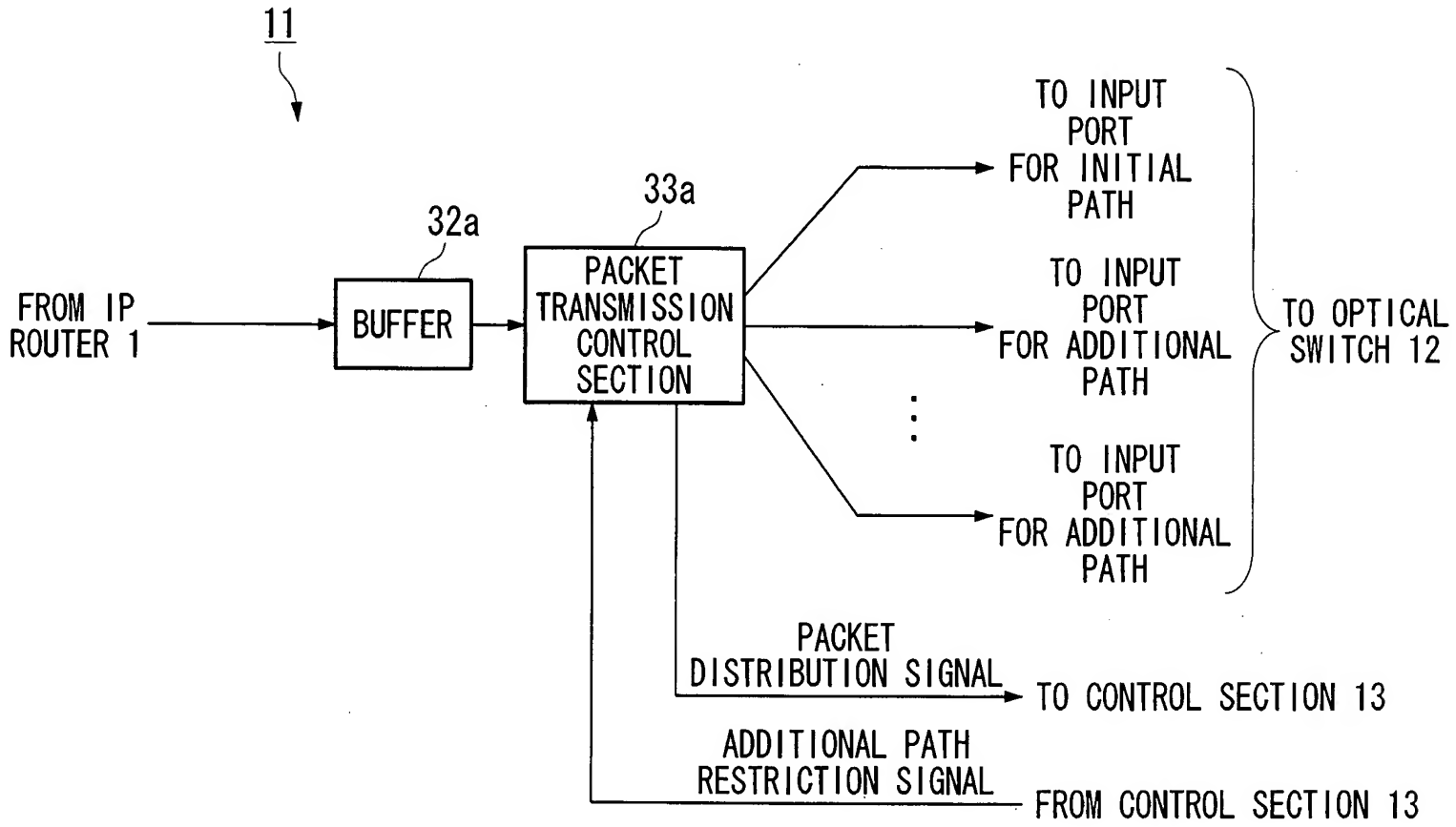

50
51a
FROM OXC
INITIAL PATH
21
11
TO OXC
INITIAL PATH
51b
ADDITIONAL PATH
FROM OXC
MONITORING SECTION
PACKET DISTRIBUTING SECTION
ADDITIONAL PATH
TO OXC
OPTICAL SWITCH
FROM OXC
INITIAL PATH
21
11
TO OXC
INITIAL PATH
OPTICAL SWITCH
ADDITIONAL PATH
FROM OXC
MONITORING SECTION
PACKET DISTRIBUTING SECTION
ADDITIONAL PATH
TO OXC
CONTROL SECTION
FROM EACH MONITORING SECTION 21
TO EACH PACKET DISTRIBUTING SECTION 11
CONTROL SECTION
23
13

FIG. 5


11
32a
33a
FROM IP ROUTER 1
BUFFER
PACKET TRANSMISSION CONTROL SECTION
TO INPUT PORT FOR INITIAL PATH
TO INPUT PORT FOR ADDITIONAL PATH
TO INPUT PORT FOR ADDITIONAL PATH
TO OPTICAL SWITCH 12
PACKET DISTRIBUTION SIGNAL
TO CONTROL SECTION 13
ADDITIONAL PATH RESTRICTION SIGNAL
FROM CONTROL SECTION 13